Bernays (A. C.)

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REMOVAL OF A SWALLOWED KNIFE.

Recovery of the Patient.

BY

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A CONTRIBUTION TO THE SURGERY OF THE STOMACH.

Gastrotomy for the Removal of a Swallowed Knife. Recovery of the Patient. With Illustrations.

BY AUGUSTUS C. BERNAYS,

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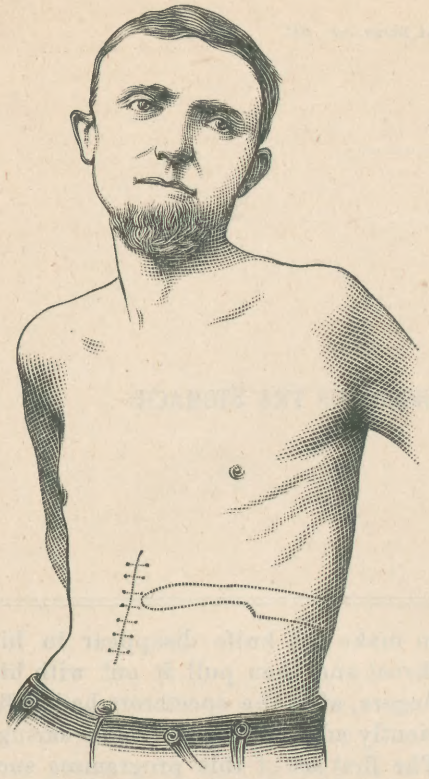
In compliance with your request I submit the following report of a most remarkable case for the benefit of your many thousands of subscribers.

Joseph Hoffmann, a German tailor, aged thirty-eight, was amusing his wife and children with various tricks and funny performances, at his home No. 1207 S. Broadway, on the evening of November 17th, 1886. They were sitting around a table and, being somewhat exhilarated, Hoffmann intended to close his entertainment by his *chef d'œuvre*, of sword swallowing, in which performance he is an expert. He had frequently pushed pokers, canes and handles of ladles down his gullet before, but on this evening he chose an ordinary case-knife (see Fig. 2, which is a facsimile of the one used). He intended to make the knife disappear in his throat and then pull it out with his fingers, after the spectators had sufficiently admired his skill and daring. The first act of this programme succeeded admirably, the artist pushed the knife down into his œsophagus, handle foremost, his chin being raised and head thrown back, so that the canal into which the knife was pushed formed a straight line. Suddenly, while in this position, the knife escaped the control of the performer. Amid the agonizing screams of the family and of the victim, the knife was carried down into the stomach by the contractions of the pharyngeal and œsophageal muscles. It was swallowed exactly in the same way as any other substance which is introduced into the fauces. The screams in Hoffmann's dwelling attracted the neighbors and the policeman on the beat. The latter telegraphed for an ambulance intending to remove Hoffmann to the City Hospital, whilst others summoned medical aid. The first medical man to arrive was the family physician, Dr. Hugo Kinner,



one of the busiest practitioners of the south side. After he had assured himself of the condition of his patient he quieted him and stepping to the nearest telephone sent for me. Dr. Kinner and I were soon in earnest consultation by means of the electric current, and it was settled that I should drive down to Hoffmann's residence, see him at once and come prepared to operate. The well known oculist, Dr. Chas. Barck and Dr. Eugene Hauck accompanied me to the scene of the accident.

When we arrived at the house, Hoffmann was having a violent spell of vomiting, and presented the appearance of a person frightened almost out of his wits. The patient had evidently made up his mind that he must die and he did not grasp the probability of being saved by an operation as readily as I expected. He refused, saying: "Oh, let me die! don't make me suffer unnecessary pain, you can't help me anyhow." At that moment he had another severe spell of vomiting, but the spasms did not relieve his stomach of any of its contents, and it seemed to me that he suffered great pain. A change seemed to have come over his thoughts and with an expression of hope on his countenance, he mounted an improvised operating table. Dr. Barck administered chloroform and a hypodermic injection of morphia was made. While the patient was being narcotized, Drs. Kinner, Hauck and I quickly prepared the necessary instruments, sponges, etc. The patient passed into a remarkably quiet anæsthesia, which was not interrupted by a single spell of vomiting during the entire operation.

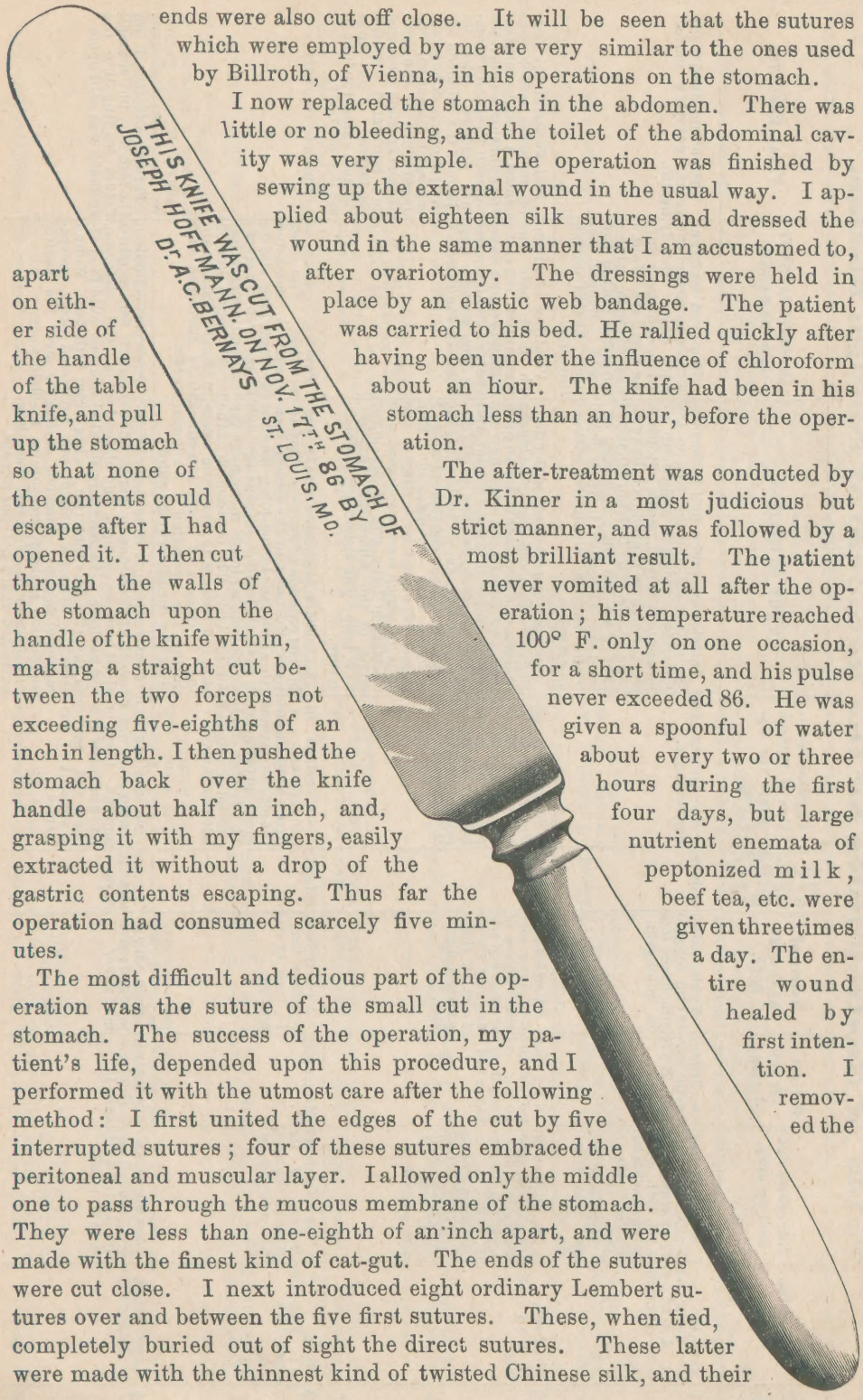
I began the first incision about an inch below the ensiform process and cut straight down on the linea alba to within about an inch from the umbilicus. This cut was about five inches in length and was quickly carried through into the abdomen. The second step of the operation consisted in pulling the stomach out of the abdominal incision. The stomach contained some beer and the remnants of a light supper, besides the knife. I introduced my whole left hand into the abdomen and soon succeeded in pulling out the pyloric end of the stomach which contained the handle of the knife. The dotted line shows the position of the knife. The end of the blade was located in the fundus of the stomach, near the angle of the ninth rib, a little to the left of the vertebral column.

The third step of the operation consisted in opening the stomach and extracting the knife. I had Dr. Kinner and Dr. Hauck to grasp the anterior wall of the stomach with two "army" bullet forceps, about an inch

ends were also cut off close. It will be seen that the sutures which were employed by me are very similar to the ones used by Billroth, of Vienna, in his operations on the stomach.

I now replaced the stomach in the abdomen. There was little or no bleeding, and the toilet of the abdominal cavity was very simple. The operation was finished by sewing up the external wound in the usual way. I applied about eighteen silk sutures and dressed the wound in the same manner that I am accustomed to, after ovariotomy. The dressings were held in place by an elastic web bandage. The patient was carried to his bed. He rallied quickly after having been under the influence of chloroform about an hour. The knife had been in his stomach less than an hour, before the operation.

The after-treatment was conducted by Dr. Kinner in a most judicious but strict manner, and was followed by a most brilliant result. The patient never vomited at all after the operation; his temperature reached 100° F. only on one occasion, for a short time, and his pulse never exceeded 86. He was given a spoonful of water about every two or three hours during the first four days, but large nutrient enemata of peptonized milk, beef tea, etc. were given three times a day. The entire wound healed by first intention. I removed the



apart on either side of the handle of the table knife, and pull up the stomach so that none of the contents could escape after I had opened it. I then cut through the walls of the stomach upon the handle of the knife within, making a straight cut between the two forceps not exceeding five-eighths of an inch in length. I then pushed the stomach back over the knife handle about half an inch, and, grasping it with my fingers, easily extracted it without a drop of the gastric contents escaping. Thus far the operation had consumed scarcely five minutes.

The most difficult and tedious part of the operation was the suture of the small cut in the stomach. The success of the operation, my patient's life, depended upon this procedure, and I performed it with the utmost care after the following method: I first united the edges of the cut by five interrupted sutures; four of these sutures embraced the peritoneal and muscular layer. I allowed only the middle one to pass through the mucous membrane of the stomach. They were less than one-eighth of an inch apart, and were made with the finest kind of cat-gut. The ends of the sutures were cut close. I next introduced eight ordinary Lembert sutures over and between the five first sutures. These, when tied, completely buried out of sight the direct sutures. These latter were made with the thinnest kind of twisted Chinese silk, and their

Table of Gastrotomies for the Removal of Foreign Bodies.

Case No.	Name of Operator.	Literature and Bibliography.	Patient—Age and Station.	Nature of the Foreign Body.	Length of time the Object was retained in the Stomach.	Physical Condition of Patient before the Operation.	THE OPERATION.	AFTER-TREATMENT AND REMARKS.	FINAL RESULTS.
1	DANIEL SCHWABE, in Kœnigsberg, Prussia, 1635.	**Baldinger's** New Magazine for Physicians, Vol. XIII, 1791, Page 567 *Berlin Clinical Weekly*, No. 7, 1883. **Hart Knochs** Old and New Prussia, 1684.	A. Gruenheyde, farmer, 22 yrs of age.	Table knife, 18 ctm. long, 15 ctm. broad (6¼ in. in length).	41 days.	No serious inconvenience.	Incision one and a half inches below and parallel to the ribs on the left side. Stomach pulled up by means of a curved needle. Stomach cut through on the point of the swallowed knife. The incision "snapped shut" after the knife had been extracted. Abdominal incision closed by five sutures. Operation without anæsthetics	Removed external sutures on second and third day. Bloody urine, and stools during first days. Wound washed with wine—strict diet during two weeks. Wound entirely healed during this time.	The patient lived many years, enjoying perfect health.
2	TILANUS, of Leyden, 1848.	**Ort**, Diss. contin. casum gastrotomiae cet. Lugduni, Batavor, 1853 **Adelmann**, *Prague Quarterly Review of Practical Medicine*, Vol. 131, 1876, page 80.	Insane girl in the town of Zuepthen, 32 yrs old.	Silver fork, 21 ctm. long, and some pieces of crockery of triangular shape 2 ctm. in their greatest diameter.	3 days.	Very weak patient. Great difficulty of swallowing. Diagnosis is proven by sounds and by examination of region of the stomach.	Patient is anæsthetized with ether. Incision only about 3 inches in length in linea alba. Stomach is drawn forth with two forceps, an opening, one inch in length into the anterior wall of the stomach, causing considerable hemorrhage. Finding of the fork and crockery consumes time and is found very troublesome. The stomach is closed by 5 stitches, the ends of which were conducted and allowed to hang out of the lower angle of the abdominal incision. The latter was closed by a simple suture.	Vomiting of greenish fluid, pain and tympanites during first and second days. Feeble and high pulse on the second day, death on the third.	*Post-Mortem* shows plastic material which has caused a conglomeration and adhesion between the stomach, liver and abdominal parietes. The incision in the stomach entirely closed. The stomach much distended. The upper third of the œsophagus is much lacerated and perforated opposite the larynx. A pus-sinus extends along the lobe of the thyroid body.
3	BELL, of Wapello, Iowa, 1855.	*The American Journal of the Medical Sciences*, 1855, July No., p. 272	Male, aged 27.	A bar of lead 9 inches long, 1-5 inch in diameter.	9 days.	No serious inconvenience at first. Vomiting on the eighth day and great prostration. The foreign body can not be detected with certainty.	An incision beginning near the umbilicus extends directly outward towards the point of the second false rib, about four inches long. The bar is extracted with a forceps through an incision which is made upon the foreign body. The contraction of the stomach suffices to close the opening. Prolapse of some intestines during the operation. Abdomen closed by the interrupted suture.	Some symptoms of gastritis. The after treatment consisted of morphine injections, two venesections and enemata. External wound healed in 5 days. Patient entirely recovered in 2 weeks.	Complete recovery.
4	LEON LABBÈ, in Paris, 1876.	*Gazette Hebdom.* Second Series. XIII(XXIII) 18, 1876, p. 273.	Lausseur, male clerk, aged 18.	Fork, five-pronged; German silver.	2 years and 10 days.	No serious inconvenience for 6 months. Later on had attacks of syncope and severe symptoms of gastralgia.	Futile attempts were made by external applications to cause adhesions between stomach and abdominal parietes. Laparotomy parallel to the ribs less than two inches in length. Stomach pulled out by means of forceps. Attached to the abdominal incision by sutures before opening it. The fork was then extracted with a polypus forceps.	A strong collodium cuirass was applied over the abdomen. Allowed solid food after fifth day. Wound healed nicely, excepting over the gastric fistula.	Patient dismissed on the 15th day, but a small fistula leading into the stomach was still open.

5	KOCHER, in Bern, 1883.	*Correspondenzblatt fur Schweizer Ærzte*, 1883. Nos. 23 and 24.	Male, 37 years old.	Piece of a broken instrument called coin catcher.	1 day.	No serious inconvenience.	Oblique incision 2 ctm. from edge of ribs. Stomach secured by two loops of thread. Incision into stomach over an inch long. Coin extractor easily removed; incision closed by 10 Lembert sutures.	Careful diet, no fever, wound heals kindly.	Complete recovery.
6	GUSSENBAUER of Prague, 1883.	*Vienna Medical Weekly*, 1883, No. 51 and 52.	Professional sword swallower, 19 yrs old.	Broken sword blade 10¾ in. in length. Broken end sharp.	2 days.	Great pain, emetics, and hanging by the feet are tried. Fever, vomiting, singultus.	Operation is very difficult; the sword blade is extracted with great difficulty after the stomach was opened.	Death in two days, of septic peritonitis.	Autopsy revealed the fact that the point of the sword had perforated the stomach, and the broken end had perforated the œsophagus.
7	SCHOENBORN, in Kœnigsberg 1883.	*V. Langenbeck's Archiv. of Surgery*, Vol. 29, page 609.	Girl, 15 years old.	Hair tumor, kidney-shaped and hard.	About 4 years.	Vomiting, a freely movable tumor in the left hypochondriac region.	Laparotomy in the linea alba. Tumor found loose in the stomach. The incision into the stomach was made parallel to the major curvature. Sixty-five Madelung's intestinal sutures were employed to close the stomach.	First intention of all sutures. Dismissed from hospital after 3 weeks.	Complete recovery.
8	THORNTON, London, 1884.	*Lancet*, 1884, No. 3.	Girl, 17 yrs of age.	Hair tumor, weight 2½ lbs.	Several years.	Diagnosis: Abdominal tumor. Great prostration.	Incision into the stomach was closed by several rows of sutures The tumor filled up the entire cavity of the stomach.	A sponge was left in the abdomen, but removed on the second day. Patient had parotitis of both glands.	Final complete recovery.
9	BILLROTH, Vienna, 1885.	V. Hacker, Operations on the stomach in Prof Billroth's Clinic, from 1880 to 1885. Vienna: Published by Teplitz & Deutsche.	Girl, 19 yrs of age.	Artificial denture, 6 teeth.	2 days.	But little inconvenience.	Incision along the ribs 4½ inches in length, beginning near ensiform process. The foreign body is very difficult to find, but is finally extracted through a small opening, the stomach being held by two loops of thread. Some ordinary interrupted sutures and a few Lembert sutures in three rows.	The healing process goes on without any feverish reaction. Patient leaves the hospital after five weeks.	Complete recovery.
10	CREDE, Staff Surgeon in Dresden, 1885.	*V. Langenbeck's Archiv. of Surgery*, Vol. 33, page 574, 1886.	F. Mücke, a barber, 24 yrs of age.	Hard rubber denture, eight teeth & clamps	15 days.	Vomiting, insomnia, great nervousness.	Oblique incision 5 inches long parallel to the ribs, beginning near the ensiform process. Stomach was drawn out. Foreign body was found near the pylorus. Incision into stomach 2 inches long. Three tiers of sutures were used to close the stomach.	No vomiting, no feverish reaction, patient dismissed on the 21st day.	Complete recovery.
11	A.C.BERNAYS, St. Louis, Mo., 1886.	*Medical Brief*, St. Louis, Mo., Jan. 1887.	Jos. Hoffmann, tailor, aged 38.	Silver-plated table knife, 9¼ inches long, (24½ ctms.)	1 hour.	Frequent painful contractions of stomach, but no vomiting.	Incision in linea alba 5 inches long between umbilicus and ensiform process. Stomach drawn out and held by 2 Hegar's kugelzangen. Incision on knife handle about ⅝ inch in length; 5 direct interrupted sutures, buried by a row of eight Lembert sutures. Stomach replaced. Abdominal incision closed by 18 sutures.	No vomiting, no fever. First intention; patient left his bed ten days after operation.	Complete recovery.

stitches on the fifth day. The patient *got up on the tenth day* and was discharged from medical attendance on the fourteenth day. The photograph, from which fig. 1 is copied, was taken on December 6th, nineteen days after the operation. The patient is as well in every respect as he was previous to the accident.

The table which precedes shows that *only ten cases of gastrotomy are recorded* in the history of surgery, which can be compared to the one just described. We must exclude, from comparison with our own, all cases where adhesions had been formed between the stomach and the abdominal walls. In the latter cases, the operation of gastrotomy loses its dangerous features and becomes an operation of little more importance than the opening of an abscess. Including these latter cases, there are twenty-six cases of gastrotomy on record with four deaths. Seven of these, however, are so imperfectly described by the authors that they must be discarded from all tables which lay claim to our consideration, for scientific purposes.

The above table requires but little explanation. The facts speak for themselves. The operation shows a surprisingly small number of deaths, the mortality being only eighteen per cent. All the case have peculiarities, only two are nearly alike, they are the cases of Billroth and Crédé. In both of these a set of false teeth was swallowed by the patients while asleep. The lives of both patients were saved by the operation of gastrotomy. This should be a warning for all those who wear artificial dentures, to remove them before retiring.

The distinguishing feature of my own case is: Firstly, the prompt manner in which the operation was performed, the knife having remained in the stomach only about one hour. Secondly, the knife which I removed seems to have been the longest object, which has been successfully removed from the stomach by gastrotomy. Thirdly, there are some minor peculiarities in regard to the method of suture and the employment of antiseptics, which differ from former cases.

Since the publication of the above article two new cases of gastrotomy have appeared in contemporaneous journals.

Dr. Polaillon, of Paris, reported a case of gastrotomy for the removal of a fork, to the Paris Academy of Medicine on August 24th, 1886. Particulars are unknown, excepting that the patient recovered.

Dr. M. H. Richardson, of Boston, reports a case of gastrotomy, in the *Boston Medical and Surgical Journal*, December 16th, 1886, which ended in recovery. The patient swallowed and retained a set of false teeth in the lower part of his œsophagus for nearly a year. Gastrotomy was performed and after the whole hand was introduced into the stomach, the foreign body was drawn into the stomach by the fingers which reached through the cardia into the œsophagus. The stomach was sutured and returned to the abdomen.

These two cases should be added to the table. The percentage of mortality will then be reduced from 18 to 15 per cent.

903 Olive St., St. Louis, Mo.

Dr. A. F. Bock, Dr. Maurice André, Dr. W. F. Kier, and a number of other colleagues saw my patient during his illness, by my invitation, and assisted me by their experience in regard to some details of the diet and regime. I desire to express my thanks to these gentlemen. Messrs. Sennewald & Addington and Roepke, who are among our prominent druggists, gratuitously and liberally furnished medicines, antiseptics, wines, etc., which were used during the period of re-convalescence.

Bernays A. C.
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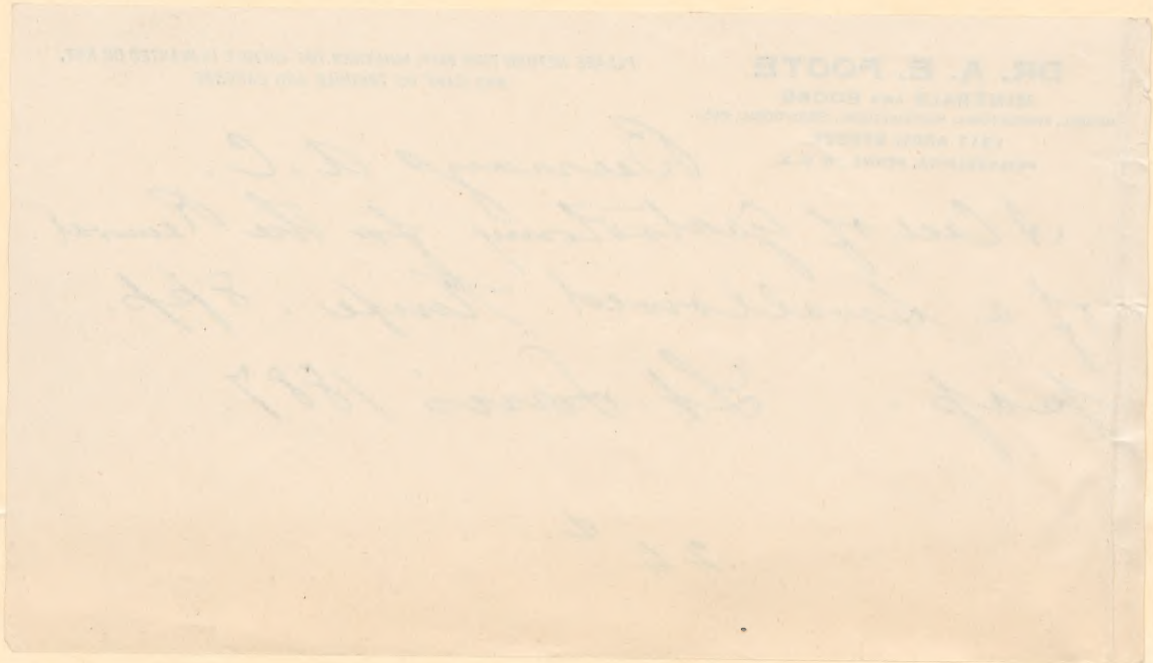

THE RELATIONS OF THE SURGEON TO THE GENERAL PRACTITIONER AND THE PUBLIC.

"A MODERN INSTANCE."

Citizen:—Dear Doctor, I wish you would call at my house this morning and see my daughter; she has fever and a sore throat.

Surgeon:—I can not go; your family physician will attend to the case much better than I could.

Citizen:—The operation you performed on me was so successful that I have the greatest confidence in you, and I want you. Our family physician is not aware that daughter is sick; please come.

Surgeon:—I will not go. Send for your family doctor.

Citizen:—I suppose some foolish code, you doctors have, is at the bottom of this. I want you to go and see my daughter, and I will pay your price.

Surgeon:—I am sorry sir; I will not go, and for your information let me tell you that the Code is not in my way at all. Under its ruling I could go at once. The Code was written forty years ago, when but little was understood of the dangers of the poisoning of wounds by subtile germs such as are probably the cause of your daughter's illness. The modern surgeon must stand on a higher ethical level than that of any code, not only because of the reason I gave you, but also because he depends, for a large proportion of his practice on the good will of the general practitioner, whom I consider to be the most useful member of our social organization, and I will always be found protecting his interests. Good morning sir, take my advice: Call in your family doctor.*

* The above conversation took place in Dr. Bernays' office, while the writer was waiting. G. F. L.